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(54) Title: ESTIMATION OF BACKGROUND NOISE AND ITS EFFECT ON SONAR RANGE ESTIMATION

(57) Abstract: A system and method for estimating the signal-to-noise ratio (SNR) in a sonar environment and for determining the effect of the estimated SNR on sonar ranging accuracy. The system includes a sensor, a transmitter, a receiver, a plurality of band-pass filters, a cross correlator, and a data analyzer. The transmitter transmits a pulse through a transmission medium. The sensor senses an echo returning from a selected target, and provides a signal representing the echo to the receiver, which in turn provides an indication of the echo to the band-pass filters. The filters provide filtered versions of the echo and pulse to the cross correlator, which performs cross correlation operations on filtered echo and pulse. By analyzing the cross correlator output data, the system can determine peak variability within multiple frequency sub-bands, thereby allowing more accurate SNR estimations in noisy environments.